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Rocky Flats Plant

Aug - 1988 EAC-420110-167

Monthly Environmental Monitoring Report

Environmental Management
F D Hobbs, Manager
N M Daugherty, Health Physicist
L A Mooney, Report Coordinator

Contributors
M R Boss
A M Long
C L Sundblad
H/E Analytical Labs

Rockwell International
Aerospace Operations
Rocky Flats Plant
P O Box 464
Golden Colorado 80402-0464

A Prime Contractor to
The United States Department of Energy

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By: Janet Nesheim, Derivative Classifier
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Dr M Lammering

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P Ferraro R Gamewell
A Stewart A J Hazle

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S Burkett

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AUGUST 1988 ENVIRONMENTAL MONITORING REPORT
ROCKY FLATS PLANT

This report summarizes the effluent and environmental monitoring programs at the Rocky Flats Plant for the month of July 1988

Included in the report are monitoring results for radioactive and nonradioactive airborne effluents continuously sampled from Plant buildings, Tables I and II Tables III through VI summarize environmental monitoring data from the Rocky Flats Plant ambient air sampling network This network is comprised of continuously operating air samplers located on plantsite, around the Plant boundary, and in neighboring communities

Water sampling results for radioactive constituents are given in Tables VII through IX Results are summarized for Plant surface water control ponds, for nearby drinking water reservoirs, and for tap water for neighboring communities Nitrate monitoring for Great Western Reservoir and Standley Lake, the two drinking water reservoirs which can receive surface water discharges from the Plant, are summarized in Table X

The Environmental Protection Agency (EPA) has issued to the Plant a National Pollutant Discharge Elimination System (NPDES) permit for control of surface water discharges Water sampling results associated with the NPDES permit, as well as applicable discharge limitations imposed by that permit, are reported in Table XI Daily flow data for surface water from the two Plant drainage systems are given in Tables XII, XIII, and XIV

The Rocky Flats Plant Environmental Monitoring Program includes evaluating plant compliance with all relevant guides, limits, and standards All average results of monitoring effluent and ambient samples complied with the applicable standards as specified in Executive Order 12088 (rules, regulations, and requirements of the Department of Energy)

The data provided in this report are provided as a matter of comity and should not be construed as an application for a permit or license, or in support of such an application Approval of the Department of Energy should be obtained prior to publication of any data contained within this report

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Name/Org: Shayne Nagle/PRC Date 11/17/08
Directed by: J.A. Nosheim DOE M471.3-1

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NOTE: Radioactive alpha-spectrometry analytical data are not included in this report for stack effluent, ambient air, or water samples because of mechanical difficulties with analytical instrumentation.

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NOTE: Radioactive alpha-spectrometry analytical data are not included in this report for stack effluent, ambient air, or water samples because of mechanical difficulties with analytical instrumentation.

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Table I. 1988 Plutonium and Uranium Airborne Effluent Data
(07/29/88 - 08/29/88)

	Plutonium		Uranium	
Month	Release (uCi)	CMax (pCi/m3)	Release (uCi)	CMax (pCi/m3)
CY 1987	15 36	0 229 ± 0 0278	16.77	0 095 ± 0 0091
January	1 10	0 004 ± 0 0005	2.23	0 005 ± 0 0005
February	2.32	0.013 ± 0 0014	2.00	0 009 ± 0.0009
March	2.73	0 010 ± 0.0024	1 49	0 004 ± 0 0024
April	1 22	0 005 ± 0 0007	1.33	0 006 ± 0 0007
May	1 84	0 015 ± 0.0017	0 82	0 004 ± 0 0004
June	1 01	0 023 ± 0 0052	0 87	0 004 ± 0 0004
July	1 79*	0 012 ± 0 0013*	0 59	0 004 ± 0 0004
August				
September				
October				
November				
December				
Year to Date	12 01	0 023 ± 0 0052	9 33	0 009 ± 0 0009

* Previously reported as incomplete

NOTE: The plutonium, uranium, americium, and beryllium measured concentrations in this report include values that are less than the corresponding calculated minimum detectable concentrations (MDC's) In some cases, the values are less than zero This method of reporting began in January 1981 These negative values result when the measured value for the laboratory reagent blank is subtracted from an analytical result which was measured as a smaller value than the reagent blank This may happen when measuring concentrations which are very close to zero

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Table II. 1988 Tritium and Beryllium Airborne Effluent Data
(07/29/88 - 08/29/88)

	Tritium		Beryllium	
Month	Release (Ci)	CMax (pCi/m3)	Release (grams)	CMax (ug/m3)
CY 1987	0.170	8748 ± 850	0.1648	0 00042
January	-0.001	188 ± 100	0 0395	0.00031
February	0.006	417 ± 250	0.0018	0 00003
March	-0.003	135 ± 100	0.0129	0 00041
April	0.006	250 ± 180	0.0131	0.00031
May	-0 002	243 ± 150	0.0200	0 00033
June	0.002	194 ± 120	0.0159	0 00025
July	0.004	100 ± 120	0 0067	0.00016
August	0.001	194 ± 100	0.0101	0 00021
September				
October				
November				
December				
Year to Date	0 013	417 ± 250	0 1200	0 00041

NOTE: Beryllium measured at 36 other screening locations was below the screening level of 0.1 gram per month

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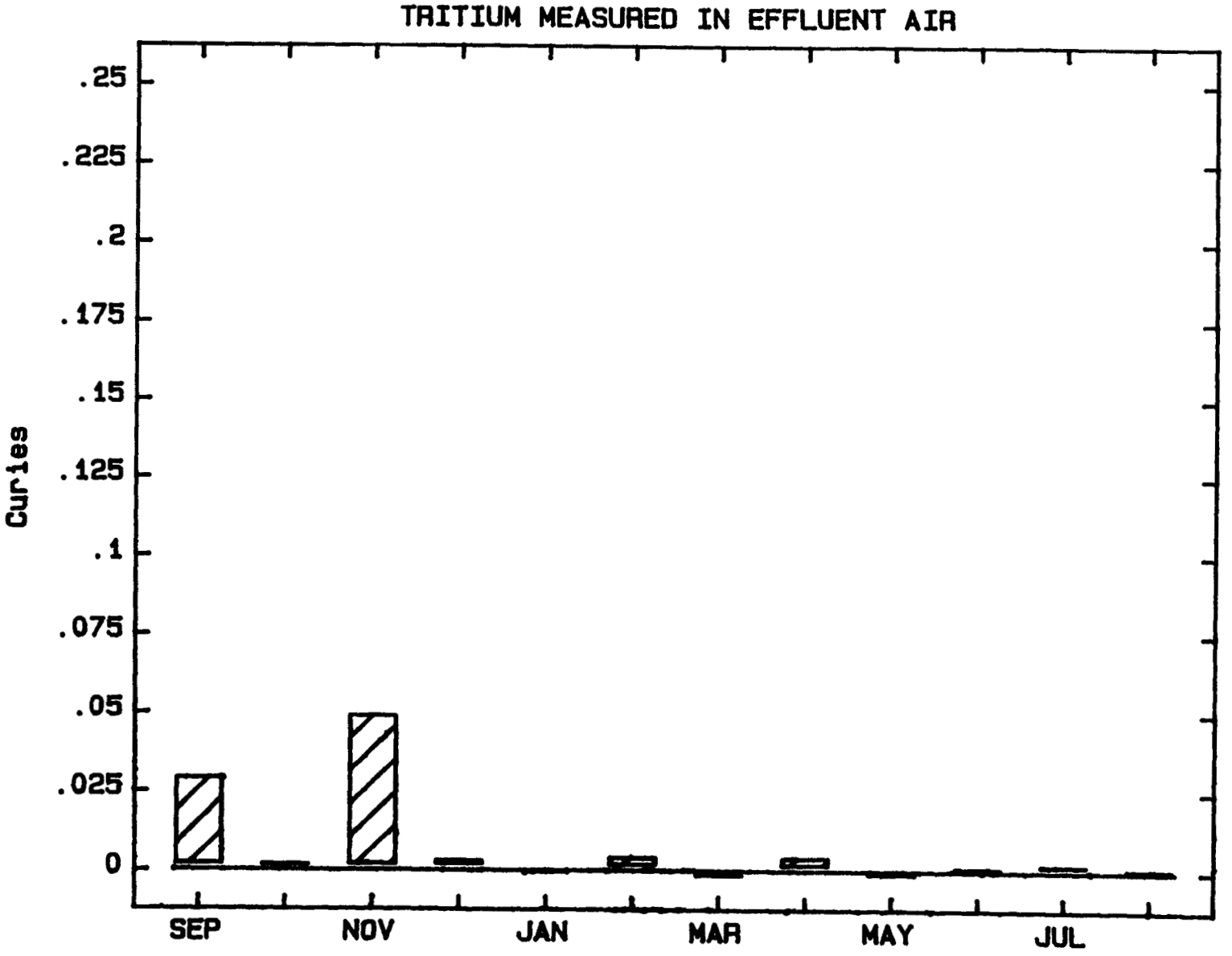
TRITIUM MEASURED IN EFFLUENT AIR
Curies
.25
.225
.2
.175
.15
.125
.1
.075
.05
.025
0
SEP
NOV
JAN
MAR
MAY
JUL

9/30

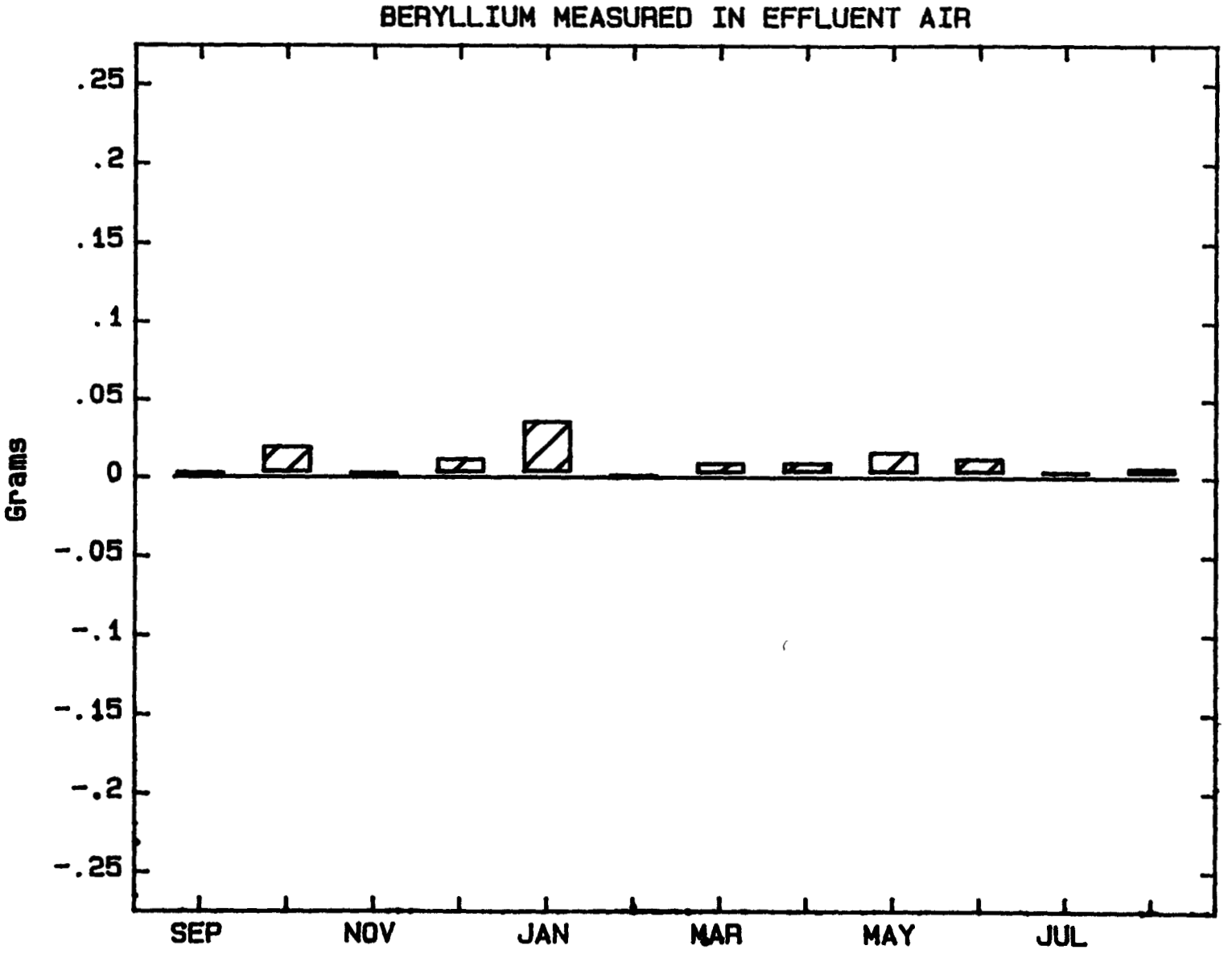
BERYLLIUM MEASURED IN EFFLUENT AIR
Grams
.25
.2
.15
.1
.05
0
-.05
-.1
-.15
-.2
-.25
SEP
NOV
JAN
MAR
MAY
JUL

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Table III. Plutonium at Selected Onsite Ambient Air Locations

Table IV Tritium in Ambient Air

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Table V Plutonium in Perimeter Ambient Air

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Location of Onsite and Plant Perimeter Ambient Air Samplers
(Portions of figure are not to scale)

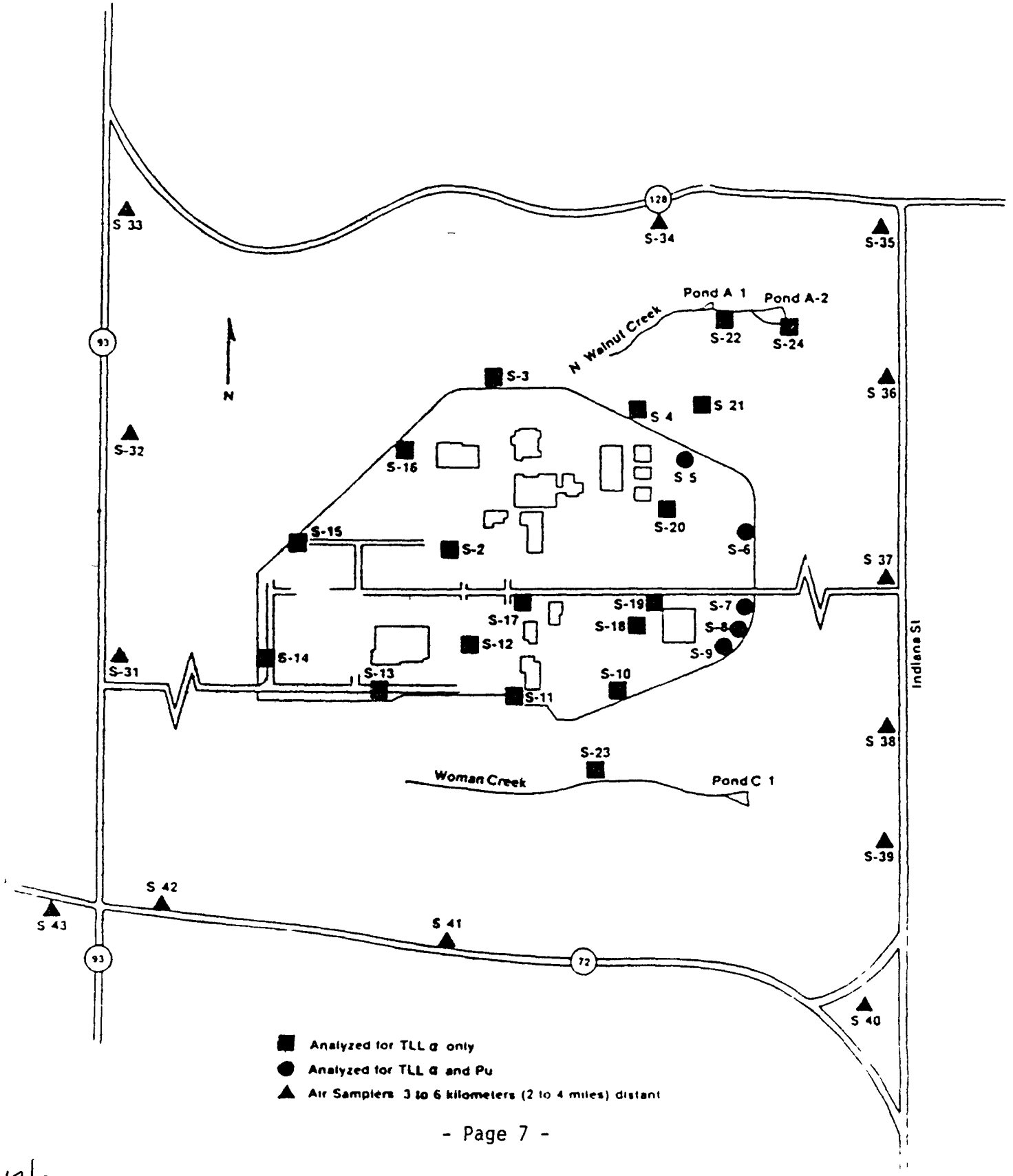

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Table VI. Plutonium in Community Ambient Air

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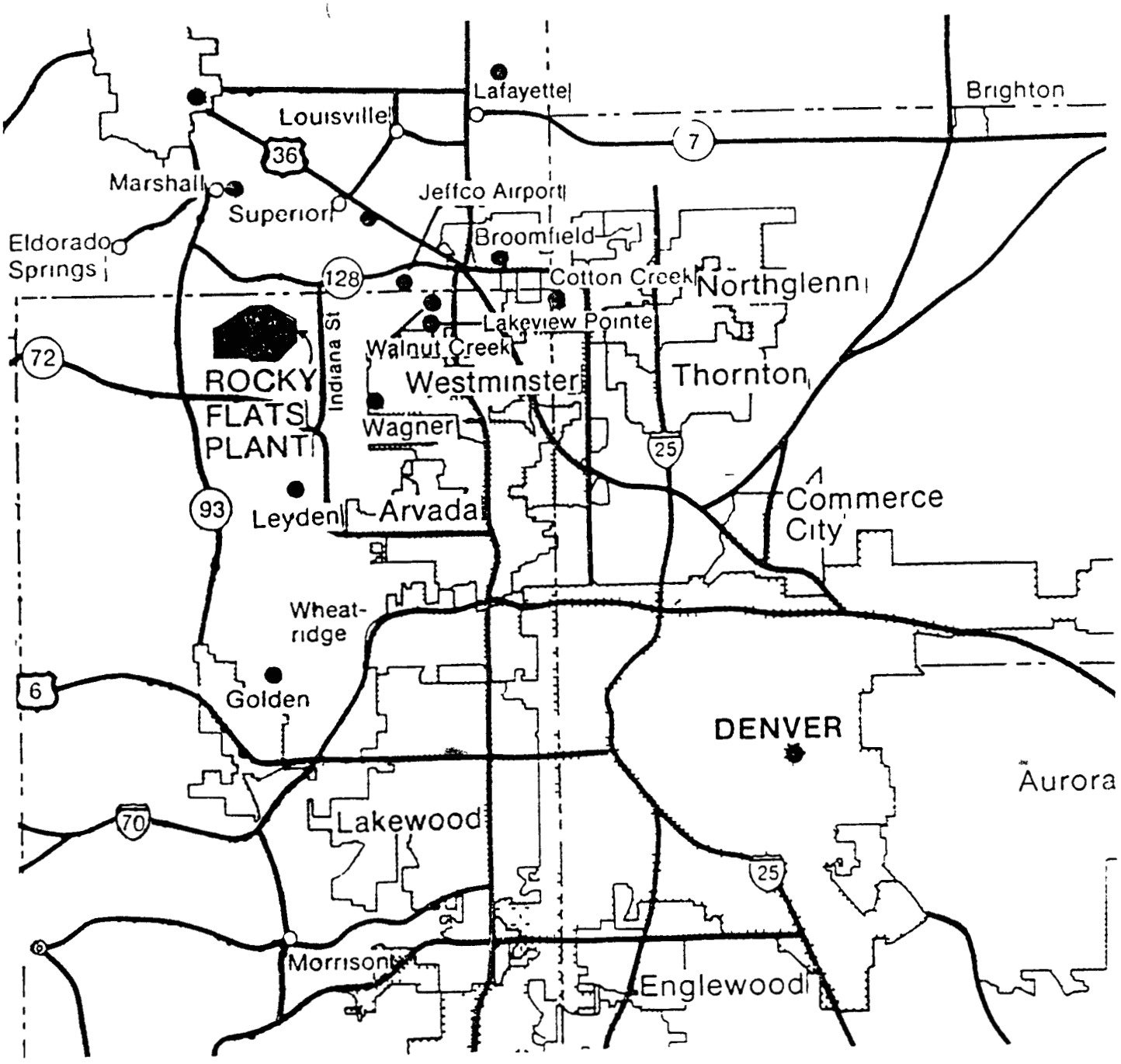


Location of Community Ambient Air Samplers

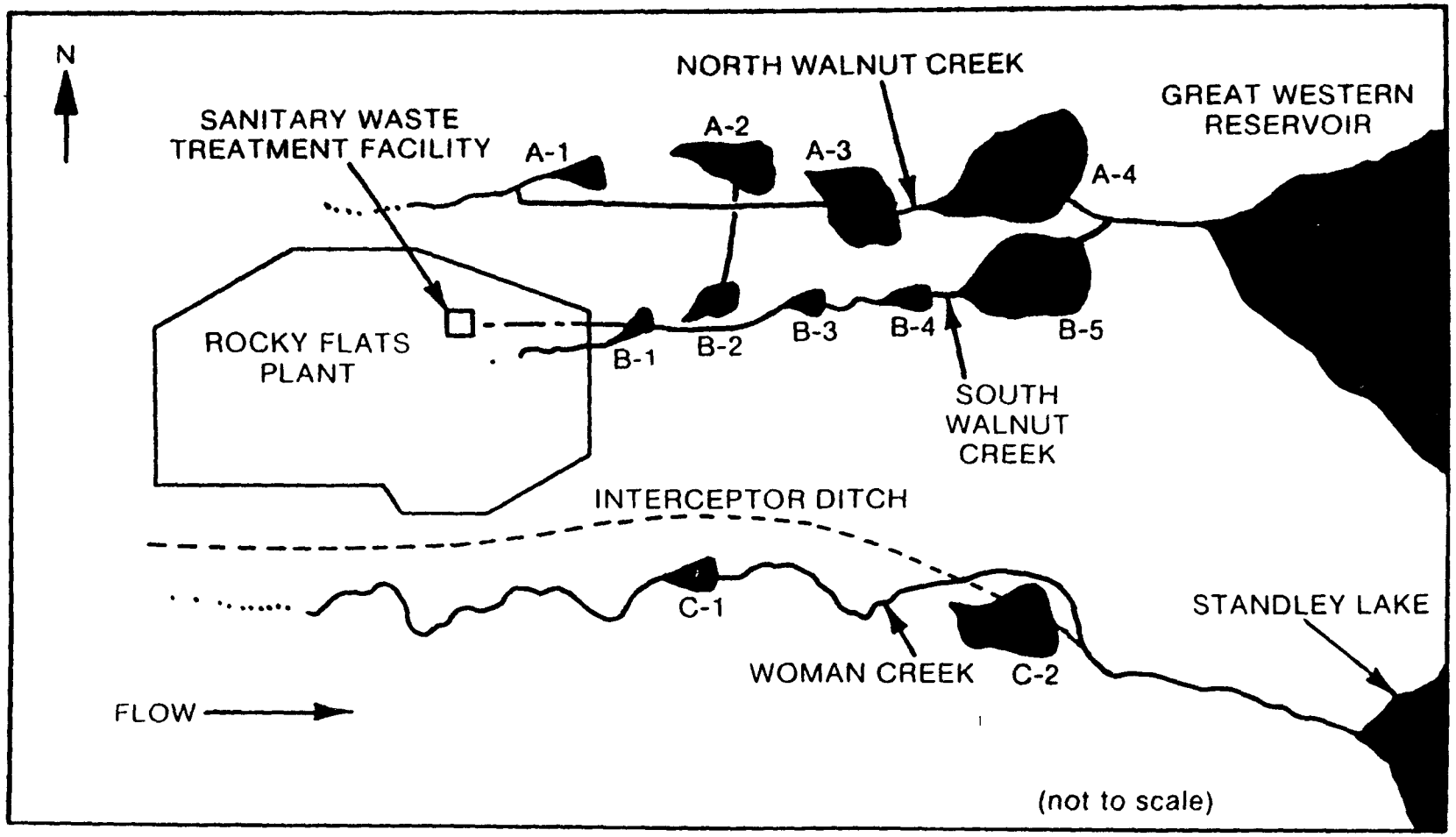
AUGUST 1988

Table VII Water Sample Results, Radioactive Parameters

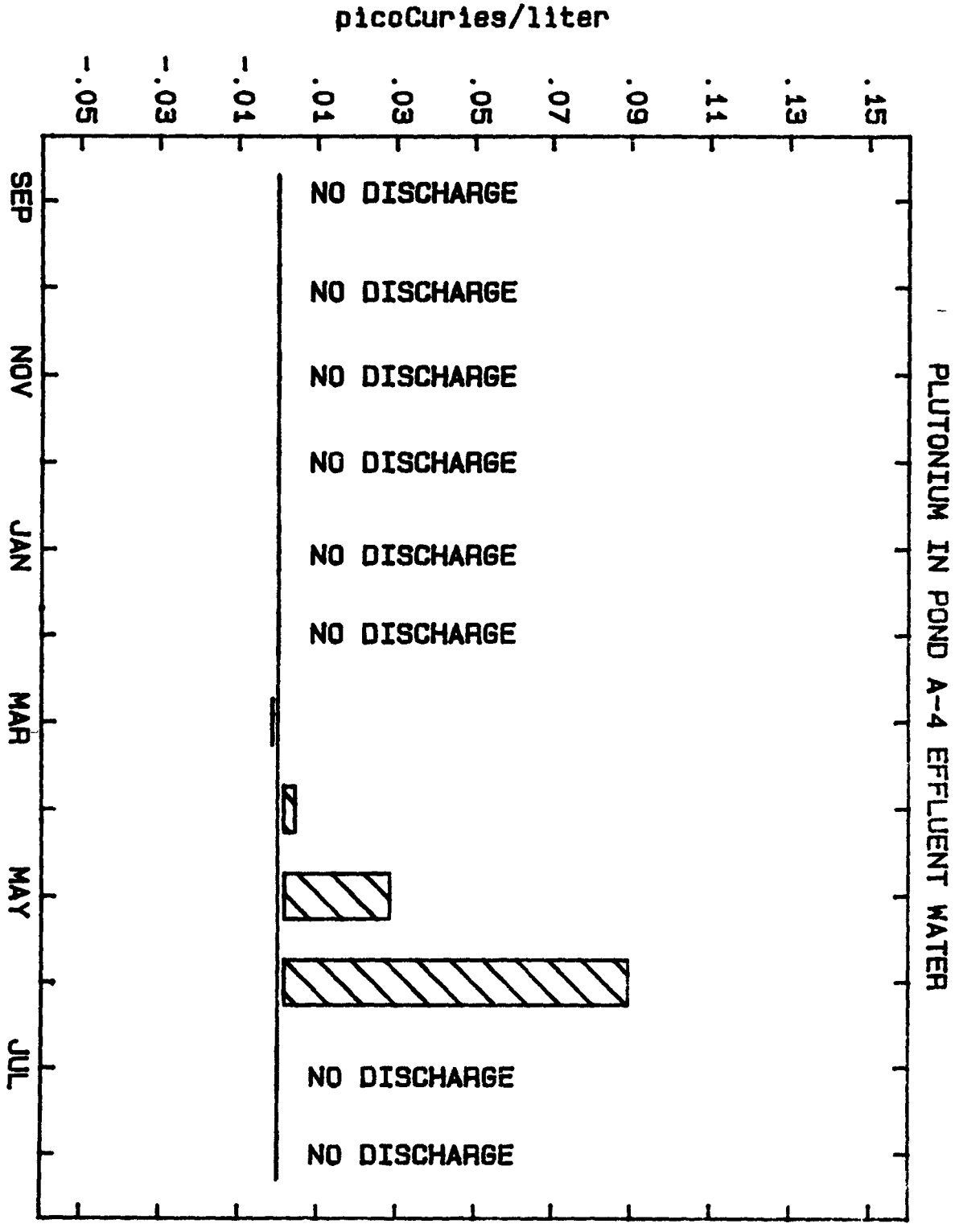
Holding Pond Outfall (pCi/l)

Location	Plutonium	Uranium	Americium
Pond A-4			
No Discharge			
Pond B-5			
No Discharge			
Pond C-1			
No Discharge			
Pond C-2			
No Discharge			
Walnut Creek at Indiana			
No Flow			

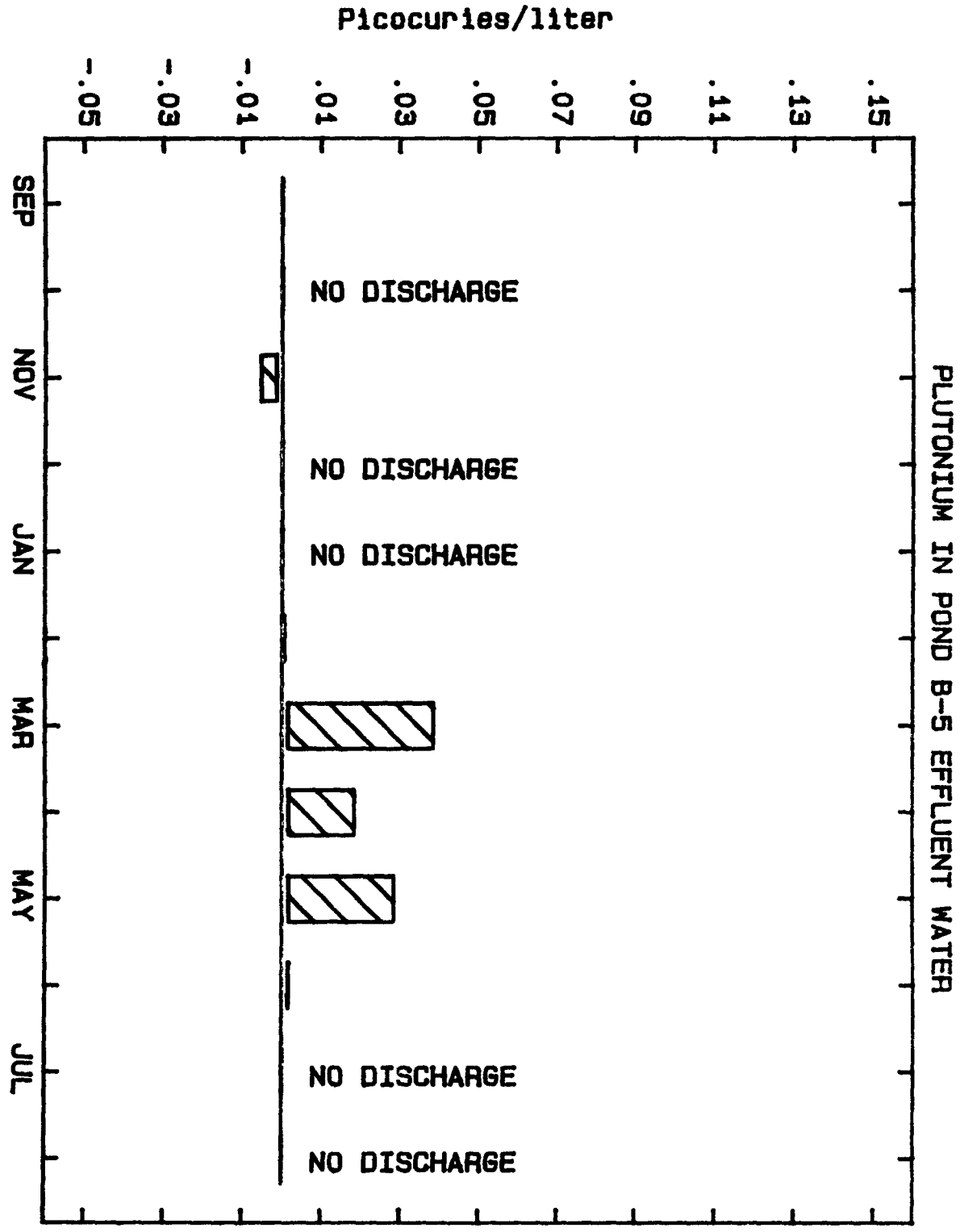
11/30



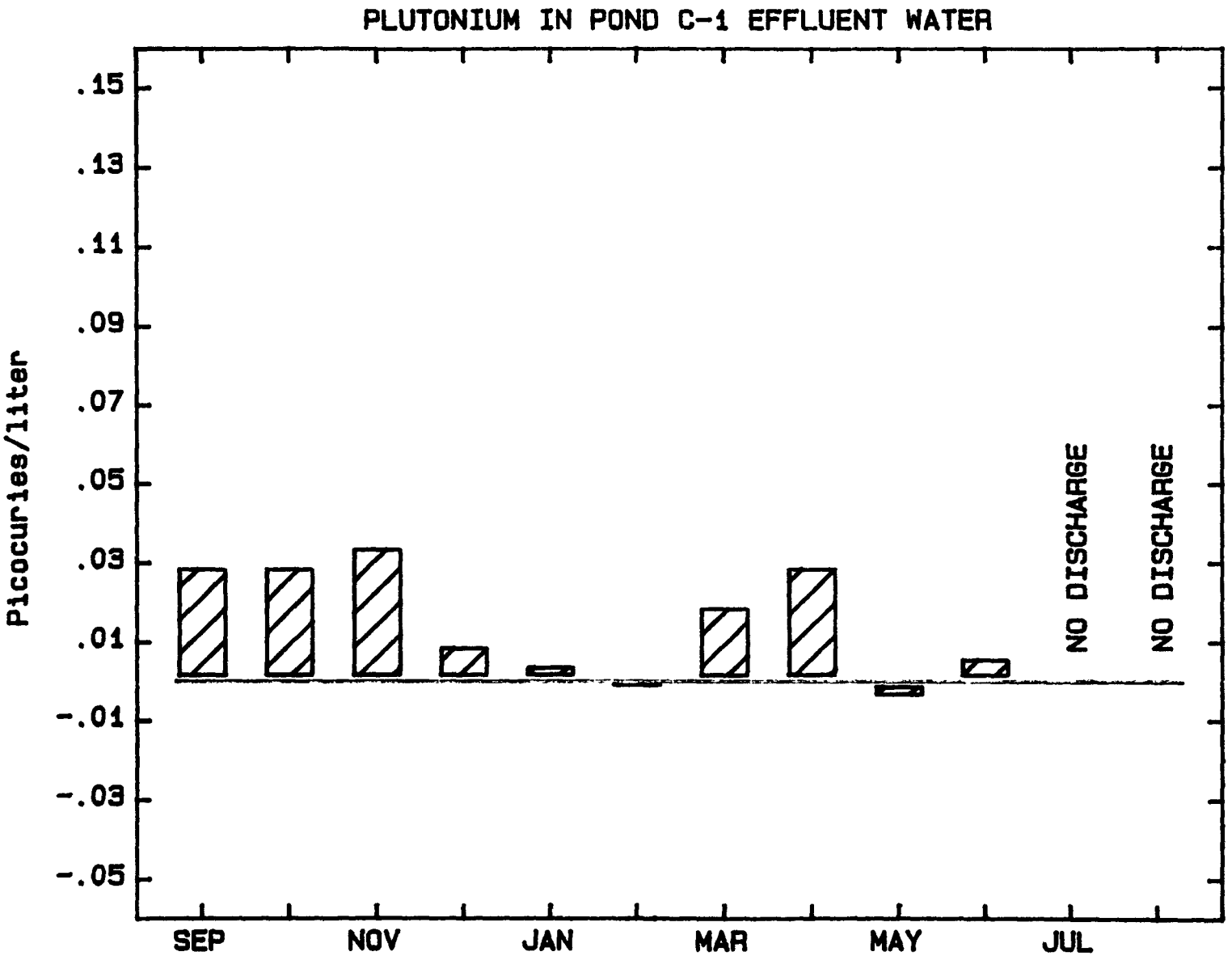
Holding Ponds and Liquid Effluent Watercourses


picoCuries/liter
-.05
-.03
-.01
.01
.03
.05
.07
.09
.11
.13
.15
SEP
NOV
JAN
MAR
MAY
JUL
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
PLUTONIUM IN POND A-4 EFFLUENT WATER

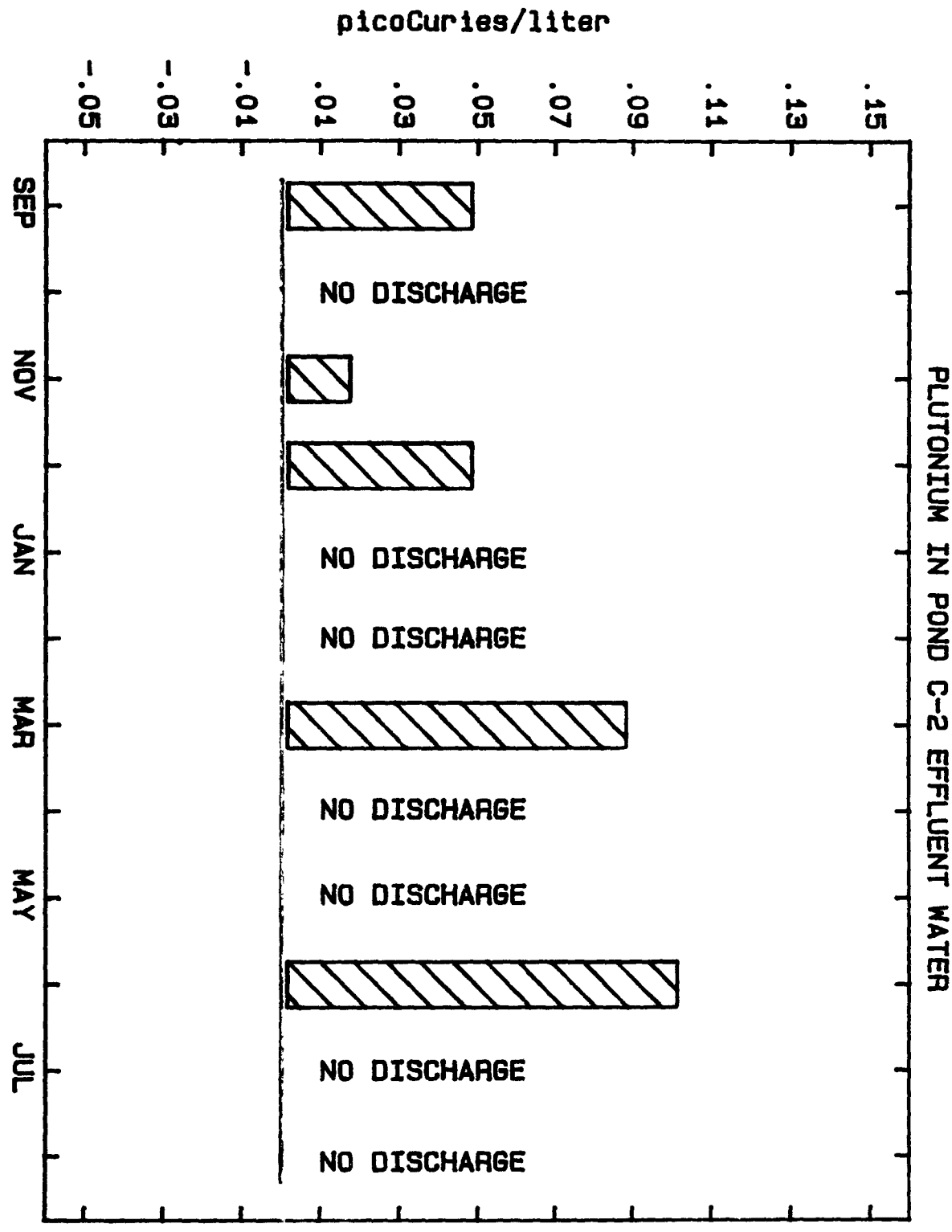
18/30

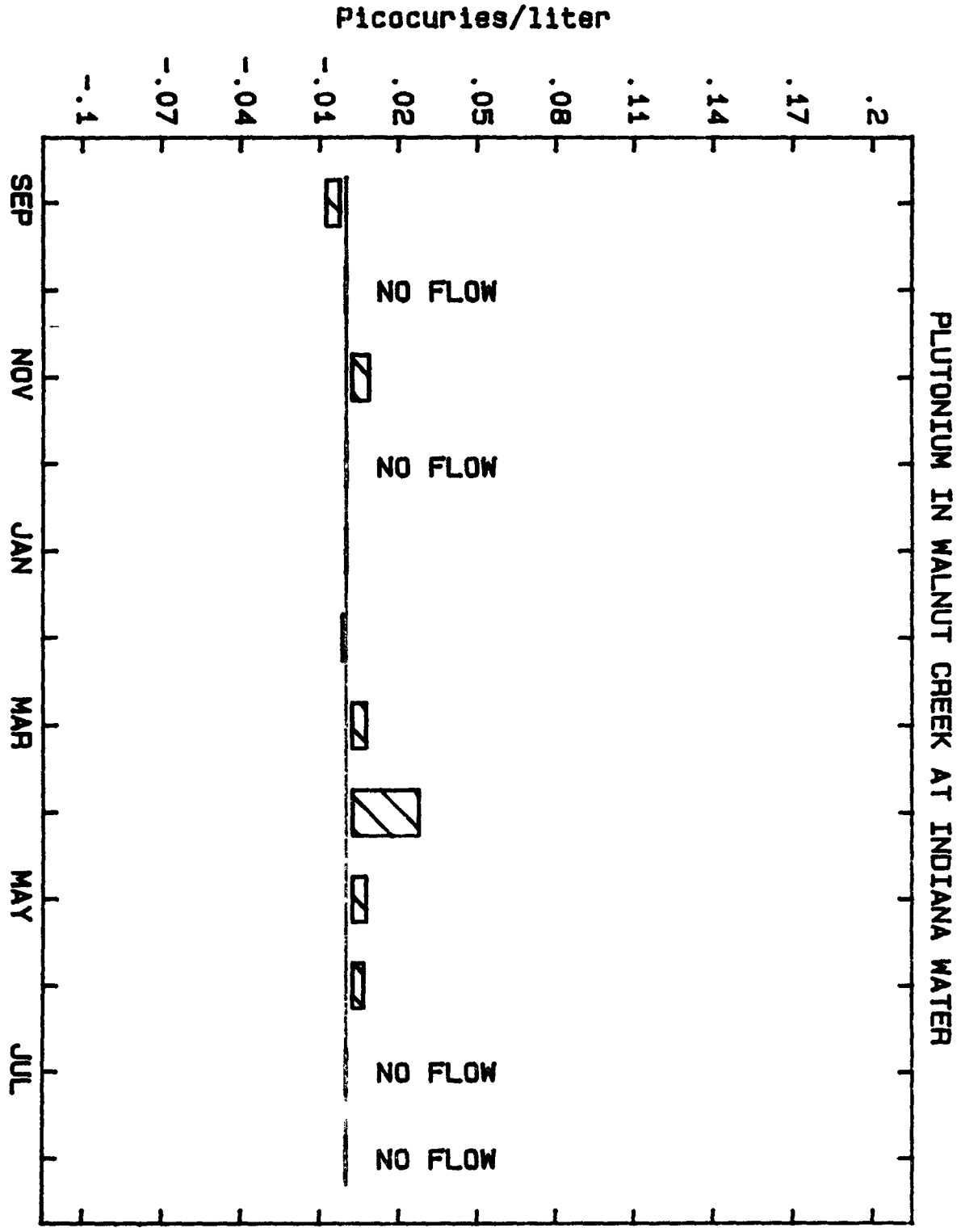

Picocuries/liter
-.05
-.03
-.01
.01
.03
.05
.07
.09
.11
.13
.15
SEP
NOV
JAN
MAR
MAY
JUL
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
PLUTONIUM IN POND B-5 EFFLUENT WATER

19/30


PLUTONIUM IN POND C-1 EFFLUENT WATER
Picocuries/liter
.15
.13
.11
.09
.07
.05
.03
.01
-.01
-.03
-.05
SEP
NOV
JAN
MAR
MAY
JUL
NO DISCHARGE
NO DISCHARGE

20/30


picoCuries/liter
-.05
-.03
-.01
.01
.03
.05
.07
.09
.11
.13
.15
SEP
NOV
JAN
MAR
MAY
JUL
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
NO DISCHARGE
PLUTONIUM IN POND C-2 EFFLUENT WATER


Picocuries/liter
-.1
-.07
-.04
-.01
.02
.05
.08
.11
.14
.17
.2
SEP
NOV
JAN
MAR
MAY
JUL
NO FLOW
NO FLOW
NO FLOW
NO FLOW
PLUTONIUM IN WALNUT CREEK AT INDIANA WATER

AUGUST 1988

Table VIII. Water Sample Results, Radioactive Parameters

Reservoirs (pCi/l)

Location	n	Plutonium	Uranium	Americium
Great Western	1*			
Standley Lake	1*			

Community Tap Water (pCi/l)

Location	n	Plutonium	Uranium	Americium
Boulder	1*			
Broomfield	1*			
Westminster	1*			

* Plutonium, uranium and americium analyses were performed on one sample composited from four weekly grab samples

Table IX. Water Sample Results, Radioactive Parameters

Tritium (pCi/l)

Location	n	$C_{Minimum}$	$C_{Maximum}$	$C_{Average}$
Pond A-4		No Discharge		
Pond B-5		No Discharge		
Pond C-1		No Discharge		
Pond C-2		No Discharge		
Walnut Creek at Indiana		No Flow		
Boulder	4	-260 ± 500	240 ± 480	- 10 ± 500
Broomfield	4	-240 ± 480	- 2 ± 500	160 ± 490
Great Western	4	-200 ± 500	320 ± 500	80 ± 250
Standley	4	-230 ± 510	1380 ± 520	390 ± 510
Westminster	4	-170 ± 500	250 ± 520	30 ± 490

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Table X. Water Sample Results, Nonradioactive Parameters

Nitrate (as N) at Great Western Reservoir

Sample Date	Nitrate (as N) (mg/l)
08/04/88	0.12
08/11/88	0.05
08/18/88	0 03
08/25/88	<0.02

Nitrate (as N) at Standley Lake

Sample Date	Nitrate (as N) (mg/l)
08/04/88	0.18
08/11/88	0.16
08/18/88	0.12
08/25/88	0 07

NOTE: For some nonradioactive parameters, the concentrations that are measured at or below the minimum detectable concentration (MDC) are assigned to MDC The less than symbol (<) indicates MDC values and calculated values that include one or more MDC's.

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Table XI NPDES Permit Water Sample Results

Discharge 001 (Pond B-3)
No Discharge

Parameters		Measured 30-Day Average	Limits 30-Day* Average	Measured Daily Maximum	Limits Daily Maximum
Biochem. Oxygen Demand, 5 Day	mg/l		10		25
Total Suspended Solids	mg/l		30		NA
Nitrates as N	mg/l		10		NA
Total Chromium	mg/l		0.05		0.1
Total Phosphorus	mg/l		8		NA
Oil and Grease, Visual			NA		NA
Total Residual Chlorine	mg/l		NA		0 5
Fecal Coliforms	#/100 ml		200		NA

Parameter		Measured Daily Minimum	Limits Daily Minimum	Measured Daily Maximum	Limits Daily Maximum
pH	S U		6 0		9 0

Discharge 002 (Pond A-3)
Discharged 2 days

Parameters		Measured 30-Day Average	Limits 30-Day* Average	Measured Daily Maximum	Limits Daily Maximum
Nitrates as N	mg/l	1.11	10	1.50	20

		Measured Daily Minimum	Limits Daily Minimum	Measured Daily Maximum	Limits Daily Maximum
pH	S.U	7 4	6 0	8 1	9 0

Discharge 003 (RO Pilot Plant)
No Discharge

Parameter		Measured Daily Minimum	Limits Daily Minimum	Measured Daily Maximum	Limits Daily Maximum
pH	S U		6 0		9 0

* This limitation applies when a minimum of 3 consecutive samples are taken during separate weeks

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Table XI NPDES Permit Water Sample Results (Continued)

Discharge 004 (RO Plant)
No Discharge

Parameters		Measured 30-Day Average	Limits 30-Day* Average	Measured Daily Maximum	Limits Daily Maximum
Total Suspended Solids	mg/l		15		25
Total Organic Compounds	mg/l		22		30
Total Phosphorus	mg/l		8		12
Nitrates as N	mg/l		10		20
Total Chromium	mg/l		0.05		0 1
Total Residual Chlorine	mg/l		NA		0.5
		7-Day Average	7-Day Average	30-Day Average	30-Day Average
Fecal Coliform	#/100 ml		400		200
		Daily Minimum	Daily Minimum	Daily Maximum	Daily Maximum
pH	S.U		6.0		9 0

Discharge 005 (Pond A-4)
No Discharge

Parameters		n	C Minimum	C Maximum	C Average
pH	S.U				
Nitrates as N	mg/l				
Nonvolatile Suspended Solids	mg/l				

Discharge 006 (Pond B-5)
No Discharge

Parameters		n	C Minimum	C Maximum	C Average
pH	S U.				
Nitrates as N	mg/l				
Nonvolatile Suspended Solids	mg/l				

Discharge 007 (Pond C-2)
No Discharge

Parameters		n	C Minimum	C Maximum	C Average
pH	S U				
Nitrates as N	mg/l				
Nonvolatile Suspended Solids	mg/l				

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Table XII Water Sample Results, Nonradioactive Parameters

Walnut Creek at Indiana Street
No Flow

Parameters		n	C Minimum	C Maximum	C Average
pH	S.U.				
Nitrates as N	mg/l				

Total Volume (gallons) =

Table XII
Daily Flow Data Recorded at the
Walnut Creek at Indiana Gaging Station
Ponds A-4 and B-5,
August, 1988

DATE	WALNUT CREEK AT INDIANA (gallons)	POND A-4 (gallons)	POND B-5 (gallons)
8/1/88	No Flow	No Discharge	No Discharge
8/2/88	" "	" "	" "
8/3/88	" "	" "	" "
8/4/88	" "	" "	" "
8/5/88	" "	" "	" "
8/8/88	" "	" "	" "
8/9/88	" "	" "	" "
8/10/88	" "	" "	" "
8/11/88	" "	" "	" "
8/12/88	" "	" "	" "
8/15/88	" "	" "	" "
8/16/88	" "	" "	" "
8/17/88	" "	" "	" "
8/18/88	" "	" "	" "
8/19/88	" "	" "	" "
8/22/88	" "	" "	" "
8/23/88	" "	" "	" "
8/24/88	" "	" "	" "
8/25/88	" "	" "	" "
8/26/88	" "	" "	" "
8/29/88	" "	" "	" "
8/30/88	" "	" "	" "
8/31/88	" "	" "	" "
TOTAL VOLUME	No Flow	No Discharge	No Discharge

DAILY FLOW DATA RECORDED AT
PONDS C-1 AND C-2 DURING
AUGUST, 1988

(WOMAN CREEK)

DATE	POND C-1 (gallons)	POND C-2 (gallons)
8/1/88	No Flow	No Discharge
8/2/88	" "	" "
8/3/88	" "	" "
8/4/88	" "	" "
8/5/88	" "	" "
8/8/88	" "	" "
8/9/88	" "	" "
8/10/88	" "	" "
8/11/88	" "	" "
8/12/88	" "	" "
8/15/88	" "	" "
8/16/88	" "	" "
8/17/88	" "	" "
8/18/88	" "	" "
8/19/88	" "	" "
8/22/88	" "	" "
8/23/88	" "	" "
8/24/88	" "	" "
8/25/88	" "	" "
8/26/88	" "	" "
8/29/88	" "	" "
8/30/88	" "	" "
8/31/88	" "	" "
TOTAL VOLUME	No Flow	No Discharge

30/30